

■ DOT MATRIX DIALECT ■

for cello, piano, percussion and electronic sound

♦

2016

■ BENJAMIN HACKBARTH ■

PROGRAM NOTE

Dot Matrix Dialect is music composed of points. These points populate the gestural language of the instruments and the electronics. On the one hand these points are content being transitory, being indivisible, adding emphatic punctuation without having any clear ideas to punctuate. On the other hand these points are desperate to be building blocks, to form the seductive curvature of glyphs and characters, to spell out words and assemble thoughts, to migrate into the sky and form the shapes that tell stories. But, alas, they are only points.

CELLO ABBREVIATED TECHNIQUES

SP – *sul ponticello*

ST – *sul tasto*

MSP – *molto sul ponticello*

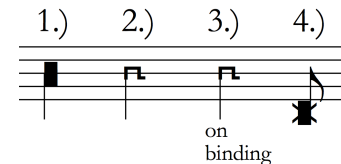
MST – *molto sul tasto*

CL Bat – *col legno battuto*

Each of these techniques applies **only to the event over which they are written**, unless extended by a horizontal bracket or additional text specifies how long they last.

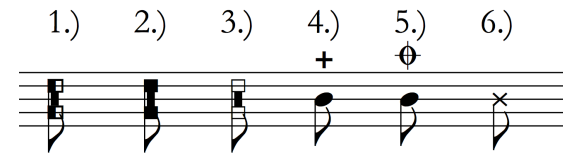
CELLO NOTEHEADS

- 1.) Mute strings with left hand resulting in an unpitched sound. Multiple fingers of the left hand should be in contact with each string at different locations, ensuring that the strings are deadened and will not produce pitches. Harmonic pressure should be used to avoid generating a fundamental pitch. Written register (approx. pitch) indicates L.H. position - higher notes correspond to higher positions on the fingerboard.
- 2.) Scratch tone – pitchless, high pressure and a slow bow speed. Use left-hand muting to avoid open string resonances.
- 3.) Scratch tone behind the bridge on the string binding. Use left-hand muting to avoid open string resonances.
- 4.) Forcefully slap the strings on the fingerboard with the left hand. Always written at this position on the staff.



PIANO NOTEHEADS

- 1.) Fully chromatic clusters/glissandi.
- 2.) Clusters/glissandi with only black notes.
- 3.) Clusters/glissandi with only white notes.
- 4.) Muted. As little pitch as possible unless otherwise noted.
- 5.) Not played on the keyboard; stop the resonance of the previous note with muting, making an articulate sound whilst hitting the strings.
- 6.) Plucked with fingernail.



PERCUSSION INSTRUMENTS

Vibraphone, glockenspiel as well as the following unpitched set of instruments:

- 1.) Large plastic bucket. ~20 liters made of thick, hard material. Inverted and on a table with cloth/foam.
- 2.) Small plastic bucket. ~4 liters made of thick, hard material. Inverted and on a table with cloth/foam.
- 3.) Shekere, played non-traditionally – a 'w' above the staff indicates to play with a mallet on the part without beads. A 'b' indicates to strike the beaded surface with a mallet. An 'h' indicates a slap the beads with a hand. 'h' should be less articulate and pointed than 'b'.
- 4.) Wooden Guiro. By default, hit like a woodblock, not scraped unless notation 5 (below) is given.
- 5.) Large tin can or small metal waste bin. ~2-4 liters. Inverted and on a table with cloth/foam.
- 6.) Whiskey bottle. On a table dampened with cloth/foam. Emptied responsibly.



PERCUSSION NOTEHEADS

- 1.) Staccato performed as a deadstroke.
- 2.) For buckets and tin can, play on the rim with the shaft.

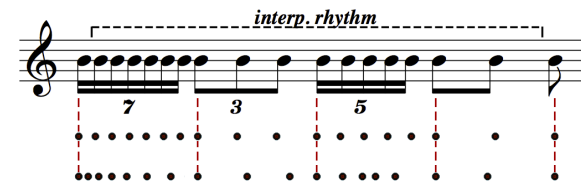


- 3.) Rimshot.
- 4.) Hit towards the edge of the membrane. Only applies to the buckets which, otherwise, are to be hit in the centre.
- 5.) An arrow across the note stem indicates a scraping motion (guiro only). Always use the shaft of the mallet, thus this notation will always use an x-notehead.
- 6.) A tremolo produced with the stick in constant contact with the instrument – after the initial attack, the stick should not leave the surface. The tremolo is created by rapidly moving the stick back-and-forth, “scribbling” across a small area. Accents and dynamics are created by expanding/contracting the area of the motion. Play frantically, as fast as possible.
- 7.) ‘On side of bar’, vibraphone only: strike the bar on the side of the top edge with the mallet.

SHAFT POSITION indicates where to play along the vertical length of the shaft. Locations closer to the head (top of the staff) should have a higher, brighter timbre which locations towards the end of the stick (bottom of staff) should be duller.

DYNAMICS IN QUOTATIONS MARKS are given when the resulting sound will be softer than the dynamic written due to an unusual performance technique. In these cases the written dynamic specifies the relative intensity of the performer’s action.

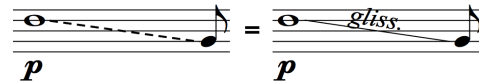
INTERPOLATE RHYTHM modifies the performance of written rhythms in a given passage such that the changing speed of attacks is smoothed. An example is shown to the left. Underneath the symbolic notation are two rows of dots corresponding to individual note attacks. The first line of dots shows the normal performed rhythm. The second row of dots shows the desired result of the “interpolate rhythm” instruction. Such modifications essentially ensure that, rather than an abrupt change in speed, the rate of successive notes is continually modified to achieve a fluid, continuous rhythm.



GLISSANDI are always notated such that quarter note stems are shown to indicate the location of each beat in each bar. These stems *do not* indicate bow changes or accent patterns, but are present only to elucidate rhythm.

DASHED GLISSANDI indicate that the rate of pitch change is coupled to the amplitude of the note. Thus, louder dynamics result in a faster glissando speed while softer dynamics indicate a slower glissando. As dynamics change over the course of a glissando, the speed of glissando should change in tandem. Consider the following examples that illustrate this coupling:

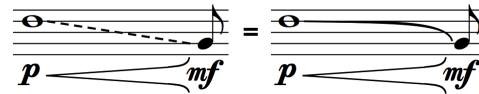
1. A static amplitude yields an even glissando, equivalent to an ordinary glissando.



2. However, a change in dynamic affects the slope of the glissando. In this case, the dynamic increase from *p* to *mf* creates a steeper pitch change towards the end of the note.



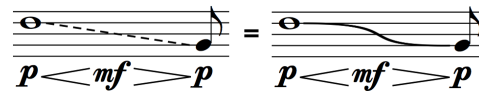
3. The slope of the change in dynamic affects the slope of the glissando. Here, the exponential hairpin creates a more sudden pitch change when compared to 2.



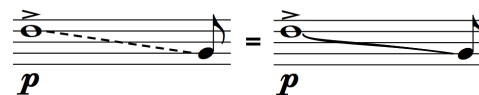
4. The intensity of dynamic change also affects the intensity of the glissando speed. A change from *p* – *mp* only creates a slight change in glissando slope...



5. ...while a change from *p* to *mf* yields a more dramatic slope in pitch change when compared to 4.



6. Any change in amplitude, however notated, affects glissando speed. Shown here, an accent.



DOT MATRIX DIALECT

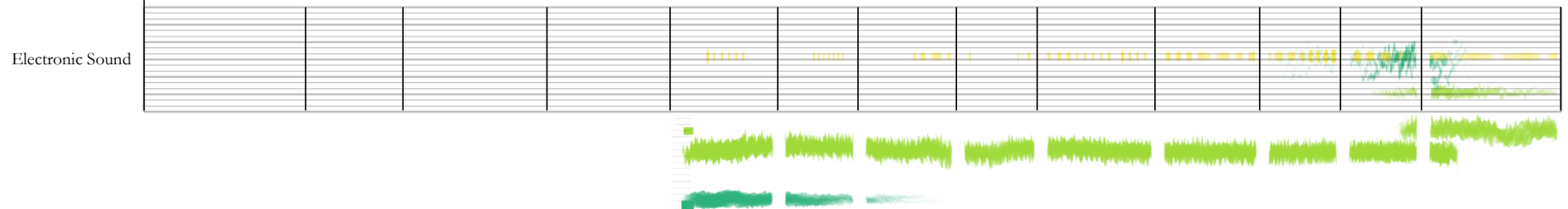
Benjamin HACKBARTH
2016

♩ = 102

Cello

Vibraphone

Piano



A

pitāṇḍu light and feathery

pitāṇḍu light and feathery

Shaft Position

Shaft Position

Shaft Position

2

2

2

28

pizz
III
♢

ff

f

Vibraphone

on side of bar—

accented notes are "on side of bar"
non-accented notes are ord.

f *ff* *ff* *f* *mf* *mp* *mf* *mp* *ff* *mf* *f* *mp* *dim. poco a poco*

(8)-----

f *ff*

3

B arco

Cl pizz
Bat

Shaft Position

5 5 5 3

$f > p$ $f > p$ $f > p$ $f > p$ ff f

fmp mf f mf f mf f mf ff

f mf mp f mf f f

4

The musical score is written for three instruments: a double bass (labeled 'B' and 'arco'), a clarinet (labeled 'Cl pizz'), and a bat (labeled 'Bat'). The music is in 2/4 time and consists of 16 measures. The double bass part (B) is marked 'arco' and features a series of chords and triplets, with dynamics ranging from $f > p$ to ff . The clarinet part (Cl pizz) is marked 'pizz' and features a series of chords and triplets, with dynamics ranging from fmp to ff . The bat part (Bat) is marked 'Bat' and features a series of chords and triplets, with dynamics ranging from f to ff . The score is accompanied by a spectrogram showing the frequency content of the music over time. The spectrogram has three main sections: a green section on the left, a purple section in the middle, and a green section on the right. The green sections show a dense, noisy texture, while the purple section shows a more structured, melodic texture. The spectrogram is divided into 16 measures, corresponding to the measures of the musical score.

62

ff

Glockenspiel

Vibraphone

Interp. Rhythm

on side of bar

mf dim. poco a poco

fp

arco

fp

f

mf

mp

f

f

5

94

D_{IV}
ST

CL Bat
jeté

all ord notes

pick up for cello

Interpolate Rhythm
Slower note speed = the two notes are slightly out of sync.
Fast note speed = perfectly synchronised.

f *p* *mf* *f* *mf* *f* *mf* *ff* *mp* *ff* *mp*

The musical score is written for three staves: Bass (CL Bat), Treble (Violin), and Grand (Piano). The key signature has one sharp (F#) and the time signature is 3/4. The piece begins with a piano introduction marked 'all ord notes' and 'pick up for cello'. The main section starts with a forte (f) dynamic, followed by a piano (p) section, and then a series of dynamic changes including mezzo-forte (mf), forte (f), fortissimo (ff), and mezzo-piano (mp). The score includes various musical notations such as slurs, accents, and articulation marks. A box labeled 'Interpolate Rhythm' provides a note on synchronization. A green waveform visualization is shown at the bottom of the page.

105

*interp. rhythm***E**

CL Bat, interpolate rhythm

Score for Glockenspiel, Vibraphone, and Piano.

Glockenspiel

Vibraphone

Piano

Measure 105: *interp. rhythm*, *p*

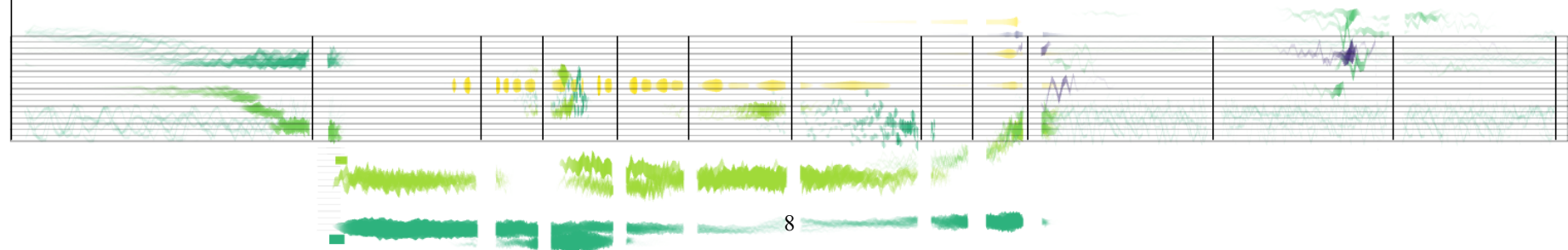
Measure 106: *mf*, *5*, *mp*

Measure 107: *ff*, *mf*

Measure 108: *mp*, *h*, *f*, *f*, *mf*

Measure 109: *ff*

Measure 110: *f*



117

F

arco ST pizz IV arco on binding CL Bat jeté 5

ff mf ff f ff

pickup for piano

Vibraphone Glockenspiel

Interpolate rhythm
Faster speed = centre of bucket
Slower speed = near edge of bucket

Vibraphone

jeté-like, interp. rhythm

mf ff mf

9

10

sempre staccatissimo and interpolate rhythm until letter L.
all notes are as short as possible regardless of written duration.
always delicate, light. accents are understated.

muffled pizz.
sempre staccatissimo and
interpolate rhythm until letter L.

The musical score for page 169 consists of four staves. The top staff is a bass clef staff, mostly containing rests, with a short melodic phrase in the final measure marked with a piano (*p*) dynamic and a triplet of eighth notes. The second and third staves are treble clef staves, also mostly containing rests. The fourth staff is a grand staff (treble and bass clefs) containing complex piano accompaniment. It features numerous triplets, slurs, and dynamic markings including *p*, *pp*, *mp*, and *p* with accents. The bottom of the page features a percussion staff with a series of vertical lines and dots, colored in a gradient from yellow to green, representing a rhythmic pattern.

musical score for page 186, featuring piano, vibraphone, and double bass parts. The score is written in 4/4 time and includes various dynamic markings and articulations.

Piano Part:

- Measures 1-2: mp \triangleright p (triplets).
- Measure 3: pp (triplets).
- Measure 4: p (muffled pizzicato, triplets).
- Measures 5-6: mf (triplets, quintuplets).
- Measure 7: p (triplets).
- Measures 8-9: mf (triplets).

Vibraphone Part:

- Measures 1-2: pp (triplets).
- Measure 3: mp (triplets).
- Measure 4: p (triplets).
- Measure 5: mp (triplets).
- Measure 6: p (triplets).
- Measures 7-8: mp \triangleright p (triplets).
- Measure 9: mp (triplets).

Double Bass Part:

- Measures 1-2: pp (triplets).
- Measure 3: p (triplets).
- Measure 4: mp \triangleright p (triplets).
- Measure 5: mp \triangleright p (triplets).
- Measure 6: p (triplets).
- Measures 7-8: mp \triangleright p (triplets).
- Measure 9: p (triplets).
- Measure 10: mf (triplets).

Articulations:

- [double time] (Measures 3-4)
- [normal time] (Measures 5-6)

Visual Elements:

- Blue diamond markers in the piano part.
- Yellow circle markers in the vibraphone part.
- Green triangle markers in the double bass part.

193 **J**

arco
each note is a single off-the-string bounce

The musical score consists of three main parts: a violin part, a piano part, and a graphic notation part.

- Violin Part:** Measures 193-198. It begins with a rest in measure 193. In measure 194, it starts with a half note G4 (marked *p*), followed by a series of sixteenth-note patterns. Measure 195 has a half note A4 (marked *mp*). Measure 196 has a half note B4 (marked *mf*). Measure 197 has a half note C5 (marked *p*). Measure 198 has a half note D5 (marked *pp*).
- Piano Part:** Measures 193-198. It features complex sixteenth-note passages. Measure 193 starts with a half note G4 (marked *fmp*). Measure 194 has a half note A4 (marked *mp*). Measure 195 has a half note B4 (marked *p*). Measure 196 has a half note C5 (marked *mp*). Measure 197 has a half note D5 (marked *p*). Measure 198 has a half note E5 (marked *psub*).
- Graphic Notation Part:** Measures 193-198. It uses colored dots (yellow, green, blue) on a staff to represent pitch and rhythm. The dots are arranged in a series of horizontal lines, with some dots having vertical stems.

18

The musical score is written for three instruments: a double bass (bottom staff), a vibraphone (middle staff), and a piano (top staff). The key signature is one flat (B-flat major or D minor), and the time signature is 4/4.

Double Bass (Bottom Staff): The part begins with a rest, followed by a melodic line starting in the third measure. It includes triplets and a final triplet in the fifth measure. A performance instruction "arco" is written above the staff in the third measure.

Vibraphone (Middle Staff): The part consists of a continuous eighth-note pattern. It features various dynamic markings: *fmp*, *mf*, *p*, *mp*, and *mf*. There are also performance instructions: "L.V." (likely "Lied") and "Glockenspiel".

Piano (Top Staff): The part features a complex rhythmic pattern with many beamed eighth notes. It includes dynamic markings: *fmp*, *mf*, *p*, *mp*, and *p*. There are also performance instructions: "L.V." and "Glockenspiel".

The score is divided into measures by vertical bar lines. The bottom staff has a large, colorful graphic overlay in the right half, consisting of many small, colored circles and squares.

213

214

215

216

217

218

mp *p* *mp* *p* *mf* *p*

Vibraphone *p* *mf*

[double time]

mp *pp* *mf* *p* *mf* *p*

6 3 6 5 7

6

The musical score consists of four staves. The top staff is in 3/4 time and features a melodic line with triplets and quintuplets, marked with dynamics *mp*, *p*, *mp*, *p*, *mf*, and *p*. The second staff is for the Vibraphone, with a melodic line starting in measure 216, marked with *p* and *mf*. The third staff is for the piano, with a melodic line in the right hand and a bass line in the left hand, marked with *mp*, *pp*, *mf*, and *p*. The fourth staff is for the double bass, with a melodic line in the right hand and a bass line in the left hand, marked with *mf* and *p*. The score includes various musical notations such as triplets, quintuplets, and a [double time] section. The page number 213 is at the top left, and the page number 20 is at the bottom center.

219 CL. Bat. — **L** = 112

arco IV *p* 3 *f* CL. Bat II *mp* CL. Bat II CL. Bat II off the string bounce *mp* *p* IV pizz *mf* 5 arco *mp* *p*

mf *mf* *mf* *p* *p* *p* *p* *p*

229

IV pizz
mf 5

mp p

IV pizz
mf 5

arco Cl Bat
IV ST
mf

sim.

interpolate rhythm until m. 241
mf p

p

h

3

b

3

b

3

b

h

5

very short!

h

p

mp [furious]

5

5

5

254

M

II III IIIII

arco II V (don't change bow) pizz arco II V pizz

CL Bat MST

CL Bat MST

mf f mf mp mf f mf mp mf mp

mf p mp mf f mf f mp f mf f mp mf

interp. rhythm

mf p mp p mf p mp p mf p mp

CL. Bat
jeté

mf mp f

ff

staccatissimo, interp. rhythm

mf mp f p

f

bb

The musical score is written for three staves. The top staff is for the CL. Bat (Clarinete Basso) and features a series of eighth-note patterns with accents and slurs, marked with dynamics mf, mp, f, and ff. The middle staff is for the piano and features a series of eighth-note patterns with accents and slurs, marked with dynamics mf, mp, f, and p. The bottom staff is for the percussion section and features a series of eighth-note patterns with accents and slurs, marked with dynamics mf, mp, f, and p. The score includes various musical notations such as slurs, accents, and dynamic markings.

284

I δ^{ou} II δ^{ou} IV δ^{ou} II δ^{ou} IV δ^{ou} $mf < f$ ff CL. Bat III I mp pizz II f arco CL. Bat III mp

arco CL. Bat jeté

h mp sub f sub mp mf sub mp mf

mp ff emphasise C# mf

300 *pizz*
II
ff^{ma}

f *f* *ff possible*

pizz *arco*

f *ff*

the guiro scrapes happen slightly before the beat

for arm clatters. Articulation gradually changes throughout this passage: at the beginning, there is a fast upwards glissando in both arms. at the end, the glissandos are perfectly synchronised and together.

Put on socks

♩ = 82

111 RH *dim.*

p (as soft as possible)

mp *p* *mp* *mf* *p* *mp* *p* *sub mp* *p*

Solo. Soft, but with white-hot energy and unyielding relentlessness.
 Each glissando is made with a single gesture.
 All glissandi fall below F6 (the dotted line, the first pitch without dampers) until m. 337.
 Dynamics are written between *p* (as soft as possible) and *f* (as loud as possible).
 Use una corda as needed to achieve soft dynamics.

323

324

325

326

327

328

329

330

331

332

333

334

335

336

337

338

339

340

341

342

343

344

345

346

347

348

349

350

351

352

353

354

355

356

357

358

359

360

361

362

363

364

365

366

367

368

369

370

371

372

373

374

375

376

377

378

379

380

381

382

383

384

385

386

387

388

389

390

391

392

393

394

395

396

397

398

399

400

401

402

403

404

405

406

407

408

409

410

411

412

413

414

415

416

417

418

419

420

421

422

423

424

425

426

427

428

429

430

431

432

433

434

435

436

437

438

439

440

441

442

443

444

445

446

447

448

449

450

451

452

453

454

455

456

457

458

459

460

461

462

463

464

465

466

467

468

469

470

471

472

473

474

475

476

477

478

479

480

481

482

483

484

485

486

487

488

489

490

491

492

493

494

495

496

497

498

499

500

501

502

503

504

505

506

507

508

509

510

511

512

513

514

515

516

517

518

519

520

521

522

523

524

525

526

527

528

529

530

531

532

533

534

535

536

537

538

539

540

541

542

543

544

545

546

547

548

549

550

551

552

553

554

555

556

557

558

559

560

561

562

563

564

565

566

567

568

569

570

571

572

573

574

575

576

577

578

579

580

581

582

583

584

585

586

587

588

589

590

591

592

593

594

595

596

597

598

599

600

601

602

603

604

605

606

607

608

609

610

611

612

613

614

615

616

617

618

619

620

621

622

623

624

625

626

627

628

629

630

631

632

633

634

635

636

637

638

639

640

641

642

643

644

645

646

647

648

649

650

651

652

653

654

655

656

657

658

659

660

661

662

663

664

665

666

667

668

669

670

671

672

673

674

675

676

677

678

679

680

681

682

683

684

685

686

687

688

689

690

691

692

693

694

695

696

697

698

699

700

701

702

703

704

705

706

707

708

709

710

711

712

713

714

715

716

717

718

719

720

721

722

723

724

725

726

727

728

729

730

731

732

733

734

735

736

737

738

739

740

741

742

743

744

745

746

747

748

749

750

751

752

753

754

755

756

757

758

759

760

761

762

763

764

765

766

767

768

769

770

771

772

773

774

775

776

777

778

779

780

781

782

783

784

785

786

787

788

789

790

791

792

793

794

795

796

797

798

799

800

801

802

803

804

805

806

807

808

809

810

811

812

813

814

815

816

817

818

819

820

821

822

823

824

825

826

827

828

829

830

831

832

833

834

835

836

837

838

839

840

841

842

843

844

845

846

847

848

849

850

851

852

853

854

855

856

857

858

859

860

861

862

863

864

865

866

867

868

869

870

871

872

873

874

875

876

877

878

879

880

881

882

883

884

885

886

887

888

889

890

891

892

893

894

895

896

897

898

899

900

901

902

903

904

905

906

907

908

909

910

911

912

913

914

915

916

917

918

919

920

921

922

923

924

925

926

927

928

929

930

931

932

933

934

935

936

937

938

939

940

941

942

943

944

945

946

947

948

949

950

951

952

953

954

955

956

957

958

959

960

961

962

963

964

965

966

967

968

969

970

971

972

973

974

975

976

977

978

979

980

981

982

983

984

985

986

987

988

989

990

991

992

993

994

995

996

997

998

999

1000

P Play even, fluid, continuous glissandi. Minimise the impact of bow changes and avoid changing the bow if the glissando direction changes when possible. Do dynamics with bow pressure/speed.

The musical score is written for three staves: Bass, Treble, and Grand Staff. The music features continuous glissandi and dynamic markings. Below the Grand Staff, there are two rows of diagrams: yellow and green. The yellow diagrams show a series of overlapping, slanted rectangular shapes, representing a glissando effect. The green diagrams show a series of overlapping, slanted rectangular shapes, also representing a glissando effect. The diagrams are positioned below the corresponding measures of the music.

Dynamic markings: *p*, *f*, *mp*, *f*, *mp*, *mf*, *mp*, *f*, *mp*, *ff*, *p*, *ff*, *mp*.

Diagrammatic elements: Yellow and green slanted rectangular shapes representing glissandi.

33

347

III SP → slow trill ord → fast trill

fmp *f* *ffmp* *f* *mp* *f* *p* *f*

arco → over pressure

5 6 5 9

mf *mp* *f*

ff *mf < fmp* *ff* *mp* *mf* *mf < sfz* *mf < ff* *mf* *mp*

35

R

sempré IV (until the end)

mf *ff* *mf* *mp* *mf* *p* *mp* *p*

edge → centre

f

Vibraphone, medium mallets
As deadsticked as possible

7 6 5

pp *mf* *pp* *pp* *mf* *pp*

gradually release notes until only the C# remains.
let resonate until it fully decays.

Piano

ff *ff* lowest C#

Deco.

weak, unfocused sound
this gliss actually goes up!

377

Score for Piano (Pno.) and Percussion (Perc.).

The score is written for Piano (Pno.) and Percussion (Perc.). The Piano part is in 2/4 time and features complex rhythmic patterns, including triplets and sixteenth notes. The Percussion part is in 2/4 time and features a series of rhythmic patterns, including triplets and sixteenth notes.

Dynamic markings for Piano include *mp*, *p*, *pp*, *mf*, and *intense muting, no pitch, no pedal*.

The Percussion part includes a series of rhythmic patterns, including triplets and sixteenth notes, and a final section marked *intense muting, no pitch, no pedal*.